UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,730	11/20/2003	Daniel N. Cripe	200313587-1	8712

22879 7590 07/27/2009

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
SINKANTARAKORN, PAWARIS	
ART UNIT	**PAPER NUMBER**
2416	

NOTIFICATION DATE	DELIVERY MODE
07/27/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
ipa.mail@hp.com
jessica.l.fusek@hp.com

Office Action Summary	Application No.	Applicant(s)	
	10/717,730	CRIPE ET AL.	
	Examiner	Art Unit	
	Pao Sinkantarakorn	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/14/2009 have been fully considered but they are not persuasive.

The Applicants submit that Burns does not disclose reloading an offloaded connection established by the first network adapter onto the second network adapter as a result of one of a plurality of packets associated with the offloaded connection being received on the second network adapter. The Examiner respectfully disagrees. In **Figures 3-4 and column 6 line 36 - column 7 line 67**, Burns discloses that port aggregation driver causes the network interface device to change the MAC address of port 1 from MAC address A to MAC address C, and the MAC address of port 2 to change from MAC address C to MAC address A (see Figure 4 step 403 and column 7 lines 1-29). As a result of MAC address swapping in step 403 of Figure 4, port 2 inherently receives packets that were previously destined for port 1. As a result of MAC address swapping, which leads to port 2 receiving packets, port aggregation driver replaces MAC source address in the TCB with the MAC address A of the port 2 to be used to transmit (see Figure 4 step 406 and column 7 lines 57-67).

Further, the Applicants submit that if the MAC address swapping is already complete, then it would not make sense for a packet subsequently received on port 2 to cause the MAC addresses to be swapped. The Examiner respectfully disagrees. It makes sense when MAC address swapping is performed for the receiving ports. However, the MAC address also has to be performed for the transmitting ports as a

result of MAC address swapping for the receiving ports. As a matter of fact, the MAC address swapping must be performed. For instance, port 1 has MAC address A and port 2 has MAC address C. Upon port 1's failure, the MAC addresses are swapped so that port 1 has MAC address C and port 2 has MAC address A. Only after port 2 has been assigned MAC address A may port 2 begin receiving packets originally destined for port 1. If transmit for TCP connection #1 is to remain on port 2 and if now port 2 is now going to be associated with MAC A, then the MAC source address in TCB must be changed from MAC C to MAC A. Otherwise, port 2 will continue to transmit packets with the MAC source address C, where the packets with MAC source address C reach the destination. If the destination wants to transmit a packet back to port 2, the destination will transmit the packet with MAC destination address C, which is currently assigned to failed port 1. Thus, the MAC address swapping for transmit has to be performed as a result of the MAC address swapping for receive.

Thus, in view of the above reasoning, the Examiner believes the rejection should be sustained.

Claim Rejections - 35 USC § 103

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4 and 6-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Congdon et al. (US 6,151,297) in view of Burns (US 6,938,092).

Regarding claim 1, Congdon et al. disclose a computer system comprising:

a central processing unit (CPU) (see column 6 line 15, Network Operating System runs on a CPU);

a first and second network adapter teamed together and configured to receive offloaded connections (see column 8 lines 57-64, when multiple NICs in a server are

attached to a network and the NICs are using the same MAC address, it is possible to receive packets on many ports) ; and

wherein a program executing on the CPU reloads an offloaded connection established by the first network adapter onto the second network adapter if one of a plurality of packets associated with the offloaded connection was received on the second network adapter (see column 8 lines 1-5, 12-14, and 26-39, the NICs are active on the network at the same time and the invention supports a fault tolerance feature; fault tolerance enables a system to continue operating properly in the event of the failure of some of its components. The switch selects one of the multiple NICs using the fault tolerance feature when one of the NICs fails so that there is no need to reestablish a new connection).

Congdon et al. merely disclose fault tolerance. However, Burns, from the same or similar fields of endeavor, discloses a method of reloading an offloaded connection established by the first network adapter onto the second network adapter as a result of one of a plurality of packets associated with the offloaded connection being received on the second network adapter (see column 6 line 36 – column 7 line 29 and column 7 lines 57-67, Port 2 becomes a primary port, which is responsible for receiving data when Port 1 fails; as a result of Port 2 being a primary port, which is being used to receive data, the port aggregation driver updates the TCB for TCP connection #1 by changing MAC C to MAC A, where the port aggregation driver is of network access layer (see Figure 2 reference numeral 115); Once the MAC addresses are swapped, the packets originally destined to port 1 are received at port 2, which now has MAC A as its

address; as a result of the swap of the MAC addresses, port aggregation driver calls a NDIS request function to update the handle and pointer of the change and hence reloads an offloaded connection).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement a method of reloading an offloaded connection established by the first network adapter onto the second network adapter as a result of one of a plurality of packets associated with the offloaded connection being received on the second network adapter of Burns into the switch of Congdon et al.

The motivation for implementing a method of reloading an offloaded connection established by the first network adapter onto the second network adapter as a result of one of a plurality of packets associated with the offloaded connection being received on the second network adapter is that it increases the efficiency of the switch by implementing fault recovery feature into the switch.

Regarding claims 2 and 17, the first and second network adapters are capable of fully offloading all protocol processing (see column 8 lines 9-14, if one of the NICs fails, there is no need to reestablish a new connection; therefore, the NICs are fully capable of offloading all protocol processing);

regarding claims 3 and 18, the first and second network adapters transmit and receive packets of data using a single media access control (MAC) and internet protocol (IP) address (see column 8 lines 1-5).

Regarding claim 4, Congdon et al. fail to teach the system, wherein the program reloads an offloaded connection by transferring the context of the connection from the

first network adapter to the second network adapter. However, Burns from the same or similar fields of endeavor discloses a method of the program reloads an offloaded connection by transferring the context of the connection from the first network adapter to the second network adapter (see column 6 lines 36-67 and column 7 lines 57-67, the port aggregation driver updates the TCB for TCP connection #1 by changing MAC C to MAC A).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement a method of the program reloads an offloaded connection by transferring the context of the connection from the first network adapter to the second network adapter of Burns into the switch of Congdon et al.

The motivation for implementing a method of the program reloads an offloaded connection by transferring the context of the connection from the first network adapter to the second network adapter is that it increases the efficiency of the switch.

Regarding claims 6 and 21, Congdon et al. fail to teach the system, wherein the first and second network adapters send a notification to the program if a connection is prematurely terminated. However, Burns from the same or similar fields of endeavor discloses a method for send a notification to the program if a connection is prematurely terminated (see column 6 lines 36-45, sending flush status to the port aggregation driver).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement a method for send a notification to the program if a connection is prematurely terminated of Burns into the switch of Congdon et al.

The motivation for implementing a method for send a notification to the program if a connection is prematurely terminated is that it increases the efficiency of the switch.

Regarding claim 7, Congdon et al. disclose a system, wherein the first and second network adapters comprise network interface cards (NICs) (see column 6 line 2).

Regarding claims 8, 12, and 16, Congdon et al. disclose a method comprising:

examining a packet received from an external device 9see column 7 lines 38-42);

determining whether a connection associated with the packet is currently offloaded (see column 8 lines 26-39, fault tolerance feature determines whether there is any fail NIC in the server, therefore, determines whether a connection associated with the packet is currently transmitted);

reloading the connection if the packet associated with the connection is offloaded and received by a network interface not currently processing the offloaded connection (see column 8 lines 1-5, 12-14, and 26-39, the NICs are active on the network at the same time and the invention supports a fault tolerance feature; fault tolerance enables a system to continue operating properly in the event of the failure of some of its components. The switch selects one of the multiple NICs using the fault tolerance feature when one of the NICs fails so that there is no need to reestablish a new connection).

Congdon et al. merely disclose fault tolerance. However, Burns from the same or similar fields of endeavor discloses a method of reloading an offloaded connection established by the first network adapter onto the second network adapter as a result of

one of a plurality of packets associated with the offloaded connection being received on the second network adapter (see column 6 line 36 – column 7 line 29 and column 7 lines 57-67, Port 2 becomes a primary port, which is responsible for receiving data when Port 1 fails; as a result of Port 2 being a primary port, which is being used to receive data, the port aggregation driver updates the TCB for TCP connection #1 by changing MAC C to MAC A, where the port aggregation driver is of network access layer (see Figure 2 reference numeral 115); Once the MAC addresses are swapped, the packets originally destined to port 1 are received at port 2, which now has MAC A as its address; as a result of the swap of the MAC addresses, port aggregation driver calls a NDIS request function to update the handle and pointer of the change and hence reloads an offloaded connection).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement a method of reloading an offloaded connection established by the first network adapter onto the second network adapter as a result of one of a plurality of packets associated with the offloaded connection being received on the second network adapter of Burns into the switch of Congdon et al.

The motivation for implementing a method of reloading an offloaded connection established by the first network adapter onto the second network adapter as a result of one of a plurality of packets associated with the offloaded connection being received on the second network adapter is that it increases the efficiency of the switch by implementing fault recovery feature into the switch.

Regarding claims 9 and 13, Congdon et al. disclose a method further comprising determining an identifier for the network interface that receives the packet (see column 7 lines 38-44, the switch determines the output port by looking up the Destination Address in the address table) and writing the determined identifier to a memory (see column 7 address table).

Regarding claims 10, 14, and 19, Congdon et al. fail to teach the method, wherein the reloading further comprising copying the context of the connection to the network interface that received the packet. However, Burns from the same or similar fields of endeavor discloses the method, wherein the reloading further comprising copying the context of the connection to the network interface that received the packet (see column 6 lines 36-67 and column 7 lines 57-67, the port aggregation driver updates the TCB for TCP connection #1 by changing MAC C to MAC A).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the method, wherein the reloading further comprising copying the context of the connection to the network interface that received the packet of Burns into the switch of Congdon et al.

The motivation for implementing the method, wherein the reloading further comprising copying the context of the connection to the network interface that received the packet is that it increases the efficiency of the switch.

Regarding claims 11 and 15, Congdon et al. disclose a method, wherein the network interface that received the packet and the network interface currently offloading

the connection are teamed together (see column 6 lines 13-17, the group of NICs appear as a single NIC to the clients in the network);

regarding claim 20, the program monitors all data received by the first and second means for sending and receiving data connections (see column 7 lines 38-44, the switch determines the output port by looking up the Destination Address in the address table).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Congdon et al. in view of Burns as applied to claims and 1 and 16 above, and further in view of Mahalingham et al. (US 6,314,525).

Regarding claim 5, Congdon et al. in view of Siu et al. disclose all the subject matter of the claimed invention except the system/method, wherein the program inactivates connections associated with packets that have not been received for a defined time period.

However, the invention of Mahalingham et al. from the same or similar fields of endeavor disclose a method/system for deactivating a network adapter when the network adapter fails to respond after a predetermined time period (see column 9 lines 46-56).

Thus, it would have been obvious to the person of ordinary skill in the art to implement a method/system for deactivating a network adapter when the network adapter fails to respond after a predetermined time period as taught by Mahalingham into the data processing method of Congdon et al.

The motivation for implementing the method/system for deactivating a network adapter when the network adapter fails to respond after a predetermined time period is that it increases efficiency of the NICs in the server.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. **Examiner's Note**: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed

invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pao Sinkantarakorn whose telephone number is (571)270-1424. The examiner can normally be reached on Monday-Thursday 9:00am-3:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. S./
Examiner, Art Unit 2416

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2416